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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,136	04/13/2004	Lucas M. O'Gary	59095US002	4530
32692	7590	11/10/2005	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY			MARCHESCHI, MICHAEL A	
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ST. PAUL, MN 55133-3427			1755	

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/823,136	O'GARY ET AL.	
	Examiner	Art Unit	
	Michael A. Marcheschi	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-27 is/are rejected.
- 7) Claim(s) ____ is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 13 April 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/4/04, 7/21/05
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: ____.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

On page 3, applicants refer to “line 1-1 of FIG. 1” however no such line is defined. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are also objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description:

Figure 1 defines “2-2” but this is not defined in the specification. In addition Figure 9 defines numeral “120” and this is not defined in the specification (this numeral appears to be pointing to 2 different parts). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in

the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 1 and 21 are indefinite as to the limitation “substantially constant” because the examiner is unclear as to what this encompasses, thus rendering the scope of the claims unclear. The specification does not define this.

Claim 21 is also indefinite because no active method steps are present. Providing does not define a method step.

The other claims are indefinite because they depend on indefinite claims.

Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 15 defines the height as “at least 0.5 mm” but the specification defines the height as “about 0.5 mm to about 5 mm (page 7, lines 18-19), thus a discrepancy is apparent between

the claim and the disclosure (disclosure defines an upper limit not claimed). In view of this, the examiner is unclear as to which is correct.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-10, 12-14, 16, 17 and 21-24 are rejected under 35 U.S.C. 103(a) as obvious over JP 2000-289132 in view of Lux.

The JP reference teaches in the abstract, sections [0012], [0013] and [0019] and the figure, a nonwoven abrasive article comprising a nonwoven substrate having first and second surfaces, wherein the first and second surfaces defines a plurality of peaks and valleys (as is apparent from the figure and section [0019]) and an abrasive coating on one surface (i.e. coating is a result of an abrasive/binder slurry).

Lux teaches in column 4, line 55-column 5, line 20, column 6, lines 2-5, column 8, lines 55-57 and column 10, lines 20-25, various thickness known for nonwovens, as well as abrasive sizes. The reference further defines that the use of a make coat/size coat is a conventional way to apply an abrasive coating. Finally, the reference defines that in order to provide a sufficient attachment means to the nonwoven, a backing is attached to the surface of the nonwoven (surface opposite the abrasive coating).

The JP reference teaches a similar structure as defined in instant claim 1 and although the thickness of the substrate is not defined (the thickness is apparently intended in the definition of a “nonwoven” as set forth on page 5, lines 25+ of the instant specification), the substrate of this reference has a thickness and it is the examiners position that one skilled in the art would have appreciated that the desired thickness would be apparent from conventional thickness values for nonwovens that are made into abrasive articles. In other words, the use of a nonwoven (known for abrasive articles) having a conventional thickness, as clearly shown by Lux, is clearly within the scope of, and/or would have been appreciated by, the skilled artisan absent evidence of criticality. With respect to the “substantially constant” limitation, since the examiner is unclear as to what this specifically encompasses (see indefinite rejection), it is the examiners position that from the figure defined by the JP reference, it would appear that the thickness is be within the scope of “substantially constant”. In view of this, claims 1-3 and 6, 7, 8. With respect to claims 4-5, although the JP reference states that the coating applied by an abrasive slurry, it is the examiners position that one skilled in the art would have appreciated that the abrasive coating can be applied by other conventional techniques, such as, by using a make and size coating approach, as is clearly shown by Lux. In addition, the use of a slurry coating or a make/size coating are functionally equivalent methods to coat abrasive particles on a substrate and the substitution of one functionally equivalent method for another that is used to accomplish the same purpose is clearly within the scope of the skilled artisan. With respect to claim 9, although the JP reference only states that one surface is coated, it is the examiners position that if one skilled in the art desired a nonwoven article that can be used on both surface (i.e. abrasive action on both surface), one skilled in the art would have known that to accomplish this, both sides need

to be coated with an abrasive. With respect to claims 10 and 12, the JP reference states that the nonwoven can be made into a multilayer structure (i.e. having a hydrophobic layer attached to the nonwoven defined in the abstract). The hydrophobic layer broadly reads on a substrate of claim 10 and also broadly reads on a fabric, as defined by instant claim 12. In the alternative, the limitations of claims 10 and 12 would have been obvious because it is the examiners position that one skilled in the art would have appreciated that substrates can be attached to the nonwoven layer of the JP reference because Lux teaches that this concept of attaching a fabric substrate to a nonwoven is known in order to provide a means for attaching the abrasive article to an abrading device. In view of this, if it was desired to attach the article according to the JP reference to a device, the use of this additional substrate would have been obvious to the skilled artisan. With respect to the abrasive size, although not defined by the JP reference, this is obvious because it is the examiners position that the lack of an abrasive size implies that any conventional size for the abrasive can be used as long as it provides the necessary abrasive action. In view of this, one skilled in the art would have found it obvious to use any known conventional abrasive size, such as the size defined by Lux (i.e. the grade defined corresponds to the sizes within the claimed range), as the abrasive particles size according to the JP reference because this abrasive particles size is conventionally known to provide the necessary abrasive action in polishing compositions. In addition, one skilled in the art would have appreciated the size required to achieve polishing, said size being conventional in the art, as is clearly shown by Lux. Finally, one skilled in the art would have also known by routine experimentation and optimization the desired abrasive size needed to produce the desired abrasive character of the reference polishing composition. In view of this, the limitations of claims 13-14 are met. With respect to claim 16, although the overall

thickness of the article is not defined, it is the examiner position that with the thickness of the web being obvious, as defined above, once an abrasive coating is applied, the thickness will also be within the broad range defined by the instant claim. With respect to claim 17, it can be seen from the figure of the JP reference that for every peak, 2 valleys are present, thus encompassing the claimed ratio.

Although the instant figures depict a different structure when compared to the figure of the JP reference, the instant claims do not clearly define the structure of the instant figures and the claims, as drafted, are therefore broadly encompassed by the figure of the JP reference, especially since applicants do not define what is meant by “substantially constant”.

With respect to the method of claims 21 and 24, the JP reference defines that an abrasive/binder slurry is coated on the nonwoven, thus reading on these claims. With respect to claims 22-23, although the JP reference states that the coating is applied by an abrasive slurry, it is the examiners position that one skilled in the art would have appreciated that the abrasive coating can be applied by other conventional techniques, such as, by using a make and size coating approach, as is clearly shown by Lux. In addition, the use of a slurry coating or a make/size coating are functionally equivalent methods to coat abrasive particles on a substrate and the substitution of one functionally equivalent method for another that is used to accomplish the same purpose is clearly within the scope of the skilled artisan.

Claim 11 is rejected under 35 U.S.C. 103(a) as obvious over JP 2000-289132 in view of Lux, as applied to claim 10 above and further in view of DeVoe et al.

DeVoe et al. teaches in column 5, lines 1-15 that it is known to attach a foam material (sponge) to the surface of the nonwoven (surface opposite the abrasive coating).

Although the above combination of JP 2000-289132 in view of Lux implies that the substrate attached to the nonwoven is a fabric, it is the examiners position that one skilled in the art would have found it obvious to attach any other known backing (besides a fabric) to the nonwoven, as is clearly disclose by DeVoe et al. depending on the desired end use of the article. In other words, if the article was intended to be used in a wet process, one skilled in the art would have known that to optimize the absorption of the article, a material that increase the absorption thereof should be attached to the nonwoven. Since a sponge improves the absorption, the use of this material as the backing would have been clearly within the scope of the skilled artisan. In addition, DeVoe et al. implies that either sponges or fabrics are known to be attached to nonwovens and the substitution of one backing for another that is used for the same purpose (i.e. attachment to nonwovens) is clearly within the scope of the skilled artisan.

Claim 15 is rejected under 35 U.S.C. 103(a) as obvious over JP 2000-289132 in view of Lux, as applied to claim 1 above and further in view of Gagliardi.

Gagliardi teaches in claim 11, that protrusion heights for abrasive articles generally have a height of between 1-5 mm.

It is apparent from the figure defined by the JP reference that the projections (peaks) of the article have a height and it is the examiners position that one skilled in the art would have appreciated that the desired height would be apparent from conventional height values for peaks present in abrasive articles. In other words, the peak height (known for abrasive articles), as

clearly shown by Gagliardi, is clearly within the scope of, and/or would have been appreciated by, the skilled artisan absent evidence of criticality.

Claim 19 is rejected under 35 U.S.C. 103(a) as obvious over JP 2000-289132 in view of Lux, as applied to claim 1 above and further in view of Nollen et al.

Nollen et al. teaches in column 6, lines 61-68 that enhancement of the physical properties of a non woven article is accomplished by incorporating a reinforcing scrim with said nonwoven.

The use of a reinforcing scrim with the nonwoven according to the JP reference would have been obvious because it is the examiners position that one skilled in the art would have appreciated that physical properties (i.e. tear strength (tensile strength (tensile properties), puncture resistance etc.) of the nonwoven can be can optimized by using a reinforcing scrim, this concept being clearly disclosed by Nollen et al. In view of this, since the optimization of tear strength and puncture resistance are beneficial property in abrasive articles, one skilled in the art would have been motivated to incorporate any known mechanism to optimize said properties.

Claim 20 is rejected under 35 U.S.C. 103(a) as obvious over JP 2000-289132 in view of Lux and Nollen et al. as applied to claim 19 above and further in view of Braunschweig et al.

Braunschweig et al. discloses in the abstract that a conventional way to reinforce a substrate is to incorporate a reinforcing material within the substrate.

Although the scrim might not be defined as being incorporated in the nonwoven, but otherwise attached to the surface (as depicted by Nollen et al.), it is the examiners position that one skilled in the art would have found the incorporation of the scrim obvious by any technique.

Since it is clearly known to incorporate a reinforcing material within a substrate, as is clearly shown by Braunschweig et al., one skilled artisan would have appreciated that the scrim according to the JP 2000-289132 in view of Lux and Nollen et al. could be incorporated within the substrate. The examiner acknowledges that Braunschweig et al. is not directed to nonwovens, however, this reference is being applied to show conventional ways of reinforcing substrate (irrespective of what the substrate is). Finally, it is the examiners position that the skilled artisan would have appreciated that one known reinforcing technique for one type of substrate could be applied to other substrates absent evidence to the contrary.

Claim 25 is rejected under 35 U.S.C. 103(a) as obvious over JP 2000-289132 in view of Lux, as applied to claim 24 above and further in view of King.

King et al. teaches known conventional methods to coat a substrate with an abrasive. One method being the use of a slurry coating with a size coating thereon.

As defined above, the method of claim 24 is defined by the JP reference. This reference, however, fails to teach the use of a size coating over the slurry coat. It is the examiners position that the use of a size coating over the slurry coating would have been within the scope of the skilled artisan in order to structurally reinforce the bond of abrasive particles. In other words, 2 bonds are better than one, the second bond being a result of the size coating. King clearly states that size coats are known to be applied over slurry coating in the formation of coated abrasives.

Claims 18, 26 and 27 would be allowable if amended to overcome the indefinite rejection above and amended to include the limitations of the base claims because the prior art of records fails to teach or suggest these features.

In view of the teachings as set forth above, it is the examiners position that the references reasonably teach or suggest the limitations of the rejected claims.

A reference is good not only for what it teaches but also for what one of ordinary skill might reasonably infer from the teachings. *In re Opprecht* 12 USPQ 2d 1235, 1236 (CAFC 1989); *In re Bode* USPQ 12; *In re Lamberti* 192 USPQ 278; *In re Bozek* 163 USPQ 545, 549 (CCPA 1969); *In re Van Mater* 144 USPQ 421; *In re Jacoby* 135 USPQ 317; *In re LeGrice* 133 USPQ 365; *In re Preda* 159 USPQ 342 (CCPA 1968). In addition, "A reference can be used for all it realistically teaches and is not limited to the disclosure in its preferred embodiments" See *In re Van Marter*, 144 USPQ 421.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976).

Evidence of unexpected results must be clear and convincing. *In re Lohr* 137 USPQ 548. Evidence of unexpected results must be commensurate in scope with the subject matter claimed. *In re Linder* 173 USPQ 356. To establish unexpected results over a claimed range, applicants should compare a sufficient number of tests both inside and outside (i.e. as well as the upper and

lower limits) the claimed range to show the criticality of the claimed range. *In re Hill 284 F.2d 955, 128 USPO 197 (CCPA 1960).*

The references cited on the 1449 have been reviewed by the examiner and are considered to be art of interest since they are cumulative to or less than the art relied upon in the above rejections.

Any foreign language documents submitted by applicant has been considered to the extent of the short explanation of significance, English abstract or English equivalent, if appropriate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300

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11/05
MM

Michael A. Marcheschi
Primary Examiner
Art Unit 1755